

Population Status and Response of Bachman's Sparrow (*Aimophila aestivalis*) and Northern Bobwhite (*Colinus virginianus*) to Habitat Management Practices on Carolina Sandhills NWR (CSNWR)

FY 2014

PROJECT DESCRIPTION

Pine-grassland birds have undergone widespread population declines in recent decades (Hunter et al, 2001). Two species, Bachman's Sparrow (BASP) and Northern Bobwhite (NOBO), have shown declines on CSNWR's Breeding Bird Survey and are identified as priority species by South Carolina Department of Natural Resources (SCDNR) and "Resources of Concern" by CSNWR's Habitat Management Plan (USFWS 2014). This project meets an objective in CSNWR's Comprehensive Conservation Plan (CCP) of "developing and implementing habitat management response surveys to identify species response to treatments in longleaf pine habitat" (USFWS 2010). The strategy identified to meet this objective is to "monitor response to habitat treatments of pine-associated breeding birds (e.g. Bachman's Sparrow and Northern Bobwhite)." A targeted playback survey featuring BASP, NOBO, and Brown-headed Nuthatch (BHNU) was developed as a strategy to meet the CCP objective.

OBJECTIVES AND ALTERNATIVES

The objective of this project is to assess the efficacy of our habitat management practices for the longleaf pine-wiregrass ecosystem on the refuge and how BASP and NOBO are responding to these management practices. Baseline information was collected in 2012 and has enabled us to examine fine-scale habitat associations and also to evaluate the response of BASP and NOBO to habitat management techniques, mainly prescribed burning but also mechanical and chemical hardwood control, as appropriate. For

prescribed burning, this also extends to seasonality and frequency of burning.

METHODS AND PROTOCOLS

This is a targeted playback survey developed by Jim Cox, Stoddard Bird Lab Director at Tall Timbers Research Station. It is conducted at 60 random and five targeted sample stations throughout the refuge. The survey took place during the breeding season (April 1 through June 30). Each point was visited four times during appropriate weather conditions and each rotation of points was \geq three days apart for each species. At each sample station, the observer plays the recorded vocalizations in the following sequence: 10 seconds of silence that gives observers a chance to start the mP3 player and step in front of the vehicle, 45 seconds of targeted species vocalizations, 15 seconds of silence, 45 seconds of vocalizations, 15 seconds of silence. The number of distinct individuals observed during each sequence is documented on a datasheet. See Cox et al. 2012 for details on methodology.

DATA MANAGEMENT

Data is currently housed in an Excel data base and an Access database that was created when Biologist Jordan attended a data management class at NCTC. Data is on Biologist Jordan's hard drive, on a local network site and on an external hard drive.

DATA ANALYSIS / MODELS

Data was analyzed using the software program PRESENCE to model occupancy. Data was also analyzed using ArcGIS.

ACCOMPLISHMENTS AND MANAGEMENT IMPLICATIONS

BASP and NOBO had higher rates of occupancy in 2014 than in 2012. The relationship between BASP occupancy and fire return interval was again strong – areas burned > 4 times over the past 10 years were nearly twice as likely to be occupied as sites burned < 2 times. The relationship between NOBO and fire treatments was not as steep as for BASP, but the upward trend is clear.

ArcGIS analysis showed which areas of the refuge need more fire treatments to improve habitat conditions for BASP and NOBO. See Jordan et al. 2014 for more details on the analysis and a comparison of the 2014 results to the 2012 results.

This ongoing monitoring project fulfills CSNWR's CCP objective of "developing and implementing habitat management response surveys to identify species response to treatments in longleaf pine habitat" through "monitor(ing) response to habitat treatments of pine-associated breeding birds (e.g. Bachman's Sparrow and Northern Bobwhite)".

This project corresponds to SALCC Terrestrial Indicators of Pine woodlands, savannas, and prairies, i.e. "index of pine woodland, savanna, and prairie birds" and "acres of open canopy habitat that is regularly burned" (Collazo and Drew 2013).

This was the second round of our pine-grassland bird targeted playback survey. The refuge will conduct the third round in 2016 on BASP, NOBO, and BHNU. We will also be collecting the second round of vegetation data and updating our fire frequency data. The long-term nature of this monitoring project will continue to aid the refuge in habitat management decisions.

SOURCES OF SUPPORT

The refuge provided free housing for the Student Conservation Association intern hired for the project.

MORE INFORMATION

Data will reside on the biologist's hard drive, the refuge network drive, and on an external hard drive. The final report on the 2014 monitoring will accompany this project update summary. The reports and summaries will be uploaded into ServCat

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LITERATURE CITED

- Collazo, J. A. and C. A. Drew. 2013. Assessment of South Atlantic Landscape Conservation Cooperative Terrestrial Indicators. Raleigh, NC.
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- Hunter, W. C., D. A. Buehler, R. A. Canterbury, J. L. Confer, and P. B. Hamel. 2001. Conservation of disturbance-dependent birds in eastern North America. Wildlife Society Bulletin 29, 440-455.
- Jordan, N., J. Cox, and S. Hovis. 2014. The 2014 Targeted Playback Survey for Bachman's Sparrows and Northern Bobwhites on Carolina Sandhills National Wildlife Refuge. 7 pages, USFWS, McBee, SC.
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